

birth outcomes, statistically controlling for differences between the groups in marital status, education, age, race, quantity of prenatal care, smoking, medical risk, and other measurable risk factors.

Average newborn costs for medical care beginning within 60 days of age were compared for the women on Medicaid enrolled and not enrolled in WIC to assess the association of WIC participation and morbidity in early infancy. The difference in average costs between the WIC and non-WIC groups was divided by an estimated average program cost per WIC participant in order to derive a benefit/cost ratio. The program cost was calculated as the total value of all food vouchers redeemed during the prenatal period (process for deriving this information described below) plus an administrative cost estimated as approximately \$8 per participant per month.

An examination of the level of WIC participation determined whether a "dose-response" relationship exists between participation level and birth outcomes. Level of participation was measured in two ways: 1) months of participation in WIC during the prenatal period (four or more versus less than four);

and 2) number of WIC vouchers redeemed as a percentage of the number of redeemed vouchers expected based on the length of time the mother was on WIC during her pregnancy (90 percent or more versus 89 percent or less). This second measure controls for the confounding effect of duration of gestation since the percentage of expected vouchers redeemed will not be biased by gestational age. These measures were derived through matching the WIC birth records identified previously back to WIC participation and redemption data files in order to determine date of entry into WIC for the current pregnancy and number and dollar value of food instruments redeemed during the pregnancy.

RESULTS

Table 1 shows that WIC enrollment was associated with reduced rates of low birthweight and infant mortality, though the association was not statistically significant for infant mortality. These associations were more pronounced in the black* Medicaid population, which is at a higher risk for poor birth outcomes. Other studies have found a stronger relationship between WIC participation and birth outcomes for blacks than for whites (10,11).

TABLE 1						
Low birthweight and infant mortality by race and WIC participation. North Carolina Medicaid births, 1988. Births with no prenatal care are excluded.						
	WHITE			BLACK		
	WIC	Non-WIC	P Value Diff.	WIC	Non-WIC	P Value Diff.
Percent < 2,500 Grams	8.37	10.75	< .001	11.64	16.91	< .001
Percent < 1,500 Grams	1.38	2.46	.001	1.78	4.14	< .001
Infant Death Rate	12.8	13.4	.83	13.7	16.6	.23
Number of Births	6,084	2,608		10,093	3,558	

*Data shown are actually for births for all races other than white, about 93 percent of which are black in North Carolina.